

**CLAIMS****WHAT IS CLAIMED IS:**

1. A process for obtaining an image-bearing laminate having a laminate adhesive strength of at least about 1000 psi, the process comprising the steps: "ink jet" printing a digital image, using a pigmented ink, onto at least one surface of a thermoplastic polymer interlayer to obtain an image-bearing interlayer; and laminating the image-bearing interlayer between sheets of transparent materials to obtain an image-bearing laminate, wherein the thermoplastic interlayer is a polymer selected from: polyvinyl butyrals (PVB), polyurethanes, polyethylenes, polypropylenes, and polyesters, EVA and wherein the pigments comprise at least one pigment selected from the group consisting of PY 120; PY 155; PY 128; PY 180; PY 95; PY 93; PV19/PR 202; PR 122; PB 15:4; PB 15:3; and PBI 7.
2. The process of Claim 1 wherein the printing process additionally comprises the step of jetting the pigmented ink onto a roughened interlayer surface, the surface having a roughness ( $R_z$ ) of from about 30  $\mu\text{m}$  to about 60  $\mu\text{m}$  and a Frequency of greater than 0.9 cycles/mm, wherein the ink comprises a dispersant and optionally comprises a binder in either an aqueous or non-aqueous vehicle.
3. The process of Claim 2 wherein the viscosity of the ink is in the range of from about 1 cps to about 30 cps measured at 25 °C.
4. The process of Claim 3 wherein the viscosity of the ink is in the range of from about 1 cps to about 20 cps.
5. The process of Claim 4 wherein the viscosity of the ink is in the range of from about 1 cps to about 15 cps.
6. The process of Claim 5 wherein the viscosity of the ink is in the range of from about 1 cps to about 12 cps.
7. The process of Claim 6 wherein the pigment is dispersed in a vehicle having a water content of no more than 16 wt%.

8. The process of Claim 7 wherein the vehicle comprises an organic solvent selected from the group consisting of: propylene glycol ethers; ethylene glycol butyl ethers; dipropylene glycol monomethyl ether acetate (DPMA); or mixtures of any of these.
- 5 9. The process of Claim 8 wherein the vehicle comprises DPMA.
- 10 10. The process of Claim 9 wherein the vehicle comprises DPMA and water.
11. The process of Claim 10 wherein the vehicle consists essentially of DPMA.
- 10 12. The process of Claim 8 wherein the ink comprises a dispersant but no binder.
13. The process of Claim 12 wherein the dispersant comprises a structured polymer.
14. The process of Claim 9 wherein the ink comprises a dispersant and  
15 a binder.
- 15 15. The process of Claim 14 wherein the dispersant comprises: AB, BAB and ABC block copolymers, branched polymers and graft polymers.
16. The process of Claim 15 wherein the binder is selected from  
20 binders in the group consisting of: polyurethane (PUR); polyvinyl pyrrolidone/polyvinyl acetate (PVP/VA); PVP; and mixtures of any of these.
17. The process of Claim 16 wherein the thermoplastic interlayer is  
25 polyvinyl butyral (PVB), polyethylene terephthalate (PET), PUR, or ethylene vinyl acetate (EVA).
18. The process of Claim 17 wherein the interlayer is PVB.
19. The process of Claim 18 wherein the image is printed using a drop on demand (DOD) ink jet printing process.
20. The process of Claim 19 wherein the DOD process is a piezo  
30 electric process.
21. The process of Claim 19 wherein the DOD process is a thermal ink jet printing process.

22. The process of Claim 18 wherein the image is printed using a continuous drop ink jet printing process.
23. A decorative laminate having an adhesive strength of at least about 1000 psi comprising at least one sheet of interlayer material bearing an image on at least one surface of the interlayer sheet, wherein the image was printed using an ink jet printing process comprising the step of jetting either an aqueous or solvent-based pigmented ink onto a roughened interlayer surface, the surface having a roughness ( $R_z$ ) of from about 30  $\mu\text{m}$  to about 60  $\mu\text{m}$  and a Frequency of greater than 0.9, wherein the pigment comprises at least one pigment selected from the group consisting of PY 120; PY 155; PY 128; PY 180; PY 95; PY 93; PV19/PR 202; PR 122; PB 15:4; PB 15:3; and PBI 7; and wherein the ink has a viscosity that is sufficiently low that it can be jetted through an ink jet printing head without heating the printing head, and wherein the ink comprises a dispersant and optionally comprises a binder.
24. The laminate of Claim 23 wherein the interlayer is laminated between two sheets of glass.
25. The laminate of Claim 24 wherein the laminate has an adhesive strength of at least about 1400 psi.
26. The laminate of Claim 25 wherein the laminate has an adhesive strength of at least about 1700 psi.
27. The laminate of Claim 26 wherein the laminate has an adhesive strength at least about 1800 psi.
28. The laminate of Claim 27 comprising an image printed using at least two inks, wherein each ink, when printed onto the interlayer individually, has an adhesion of at least 1000 psi.
29. The laminate of Claim 28 wherein each ink, when printed onto the interlayer individually, has an adhesion of at least 1400 psi.
30. The laminate of Claim 29 wherein each ink, when printed onto the interlayer individually, has a Delta E after 480 KLangley of less than 10.

31. A thermoplastic interlayer sheet bearing an image on at least one surface of the interlayer sheet, the image being printed on the sheet by a process comprising the step: jetting either an aqueous or solvent-based pigmented ink onto a roughened interlayer surface, the surface having a roughness ( $R_z$ ) of from about 30  $\mu\text{m}$  to about 60  $\mu\text{m}$  and a Frequency of greater than 0.9 cycles/mm, wherein the pigment comprises at least one pigment selected from the group consisting PY 120; PY 155; PY 128; PY 180; PY 95; PY 93; PV19/PR 202; PR 122; PB 15:4; PB 15:3; and PBI 7; and wherein the ink has a viscosity that is sufficiently low that it can be jetted through an ink jet printing head without heating the printing head, and wherein the ink comprises a dispersant and optionally comprises a binder.
32. The interlayer of Claim 31 wherein the interlayer has a surface roughness Frequency of from about 1.0 cycles/mm to about 2.9 cycles/mm.
33. The interlayer of Claim 32 wherein the interlayer has a surface roughness Frequency of from about 1.1 cycles/mm to about 2.5 cycles/mm.
34. The interlayer of Claim 33 wherein the interlayer comprises PVB, PET, or PUR.
35. The interlayer of Claim 34 wherein the interlayer is PVB.